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National Ignition Campaign Hohlraum Energetics[1]

NATHAN MEEZAN, Lawrence Livermore National Laboratory

The first series of experiments on the National Ignition Facility (NIF), as part of the National Ignition Campaign, will determine the hohlraum path forward for indirect drive ignition. These first experiments will test ignition hohlraum "energetics," a term described by four broad goals:

- Measurement of laser absorption by the hohlraum
- Measurement of the x-ray radiation flux (T_{RAD}^4) on the surrogate ignition capsule
- Quantitative understanding of the laser absorption and resultant x-ray flux
- Determining whether initial hohlraum performance is consistent with point design requirements for ignition using either a beryllium or plastic capsule ablator.

In this talk, we summarize the status of NIF hohlraum energetics experiments. We describe the hohlraum target and experimental design, including an overview of the theoretical and computational tools that have been used to design the hohlraums. We explain the validation of these tools on predecessor facilities and describe their performance on the first NIF experiments. We then discuss our current understanding of NIF hohlraum performance and the resulting near-term and long-term plans for NIF ignition hohlraum experiments.

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